

WHAT IS CLAIMED IS:

1 1. A microfluidic embryo handling device comprising:
2 an embryo transport network having a biological medium for movement of
3 embryos inserted therein, said transport network including an approximate embryo scaled
4 embryo fluidic channel to facilitate simulated biological rotating of individual embryos
5 moving within said fluidic channel.

1 2. The microfluidic embryo handling device of claim 1, wherein said
2 transport network is formed in a wafer and said embryo fluidic channel comprises a
3 microchannel in said wafer.

1 3. The microfluidic embryo handling device of claim 1, further
2 comprising:

3 a biological medium source for introducing said biological medium into said
4 embryo transport network in a continuous flow manner; and

5 a control test embryo network fed said biological medium from said biological
6 medium source, said control test embryo network being biologically isolated from said
7 embryo transport network.

1 4. The microfluidic embryo handling device of claim 1, further
2 comprising:

3 a gravity controlled biological medium source for introducing said biological
4 medium into said embryo transport network in a continuous flow manner.

1 5. The microfluidic embryo handling device of claim 1, further comprising
2 a formation in a path defined by said communication channel for holding an embryo at a
3 desired location while maintaining flow of said biological medium past an embryo held at
4 said desired location.

1 6. The microfluidic embryo handling device of claim 5, wherein said
2 formation comprises a constriction.

1 7. The microfluidic embryo handling device of claim 6, further
2 comprising:
3 a biological medium source for maintaining flow of said biological medium
4 and for reversing flow of said biological medium to free an embryo held at said desired
5 location.

1 8. The microfluidic embryo handling device of claim 1, wherein said
2 fluidic channel has a flat bottom.

1 9. The microfluidic embryo handling device of claim 1, wherein said
2 fluidic channel has a V-shaped bottom.

1 10. The microfluidic embryo handling device of claim 1, wherein said
2 simulated biological rotating includes rotating and slipping.

1 11. The microfluidic embryo handling device of claim 1, further
2 comprising:

3 a controlled biological medium source for introducing said biological medium
4 into said embryo transport network in a continuous flow manner unassisted by electrical
5 stimulus.

1 12. The microfluidic embryo handling device of claim 1, wherein movement
2 of embryos in said embryo transport network is unassisted by electrical stimulus.

1 13. The microfluidic embryo handling device of claim 1, wherein said
2 transport network is sealed from surrounding environment and said device further comprises
3 an embryo entrance to said transport network and an embryo exit from said transport
4 network.

1 14. The microfluidic embryo handling device of claim 13, wherein said
2 embryo entrance comprises a hole penetrating a sealing member which seals said transport
3 network, said hole maintaining separation between said biological medium and surrounding
4 environment through surface tension.

1 15. The microfluidic embryo handling device of claim 14, further
2 comprising a removable cover to seal said hole.

1 16. The microfluidic embryo handling device of claim 14, wherein said hole
2 is funnel shaped.

1 17. The microfluidic embryo handling device of claim 14, wherein said hole
2 is located in a midstream portion of said transport network.

1 18. The microfluidic embryo handling device of claim 13, wherein said
2 embryo entrance comprises a well in fluid communication with said transport network.

1 19. The microfluidic embryo handling device of claim 13, wherein said
2 embryo entrance comprises a hanging drop.

1 20. The microfluidic embryo handling device of claim 1, wherein said
2 fluidic channel comprises an embryo compartment defining a culturing station for an embryo
3 and said device further comprises smaller than embryo diameter fluid flow channels for
4 moving fluid through said embryo compartment.

1 21. A microfluidic embryo handling device, comprising:
2 a fluid path for moving an embryo inserted therein by fluid flow unassisted by
3 electrical stimulus;

4 surfaces defining at least a part of said fluid path and spaced to promote
5 rotating of said embryo as it moves in said fluid path.

1 22. A method of handling embryos comprising steps of:
2 moving an embryo through exclusive use of fluid flow;
3 rotating said embryo as said step of moving is executed.